

Towards an Effective University E-Learning

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ABSTRACT

Due to COVID-19 pandemic, suddenly, most of human activities were suspended all over the world. Commerce, industry and production, education, aviation, sports, tourism and entertainments and other activities stopped. Year 2020 will be a turning point. Future Image blurred. Nothing will go as it is. A big change will occur.

Education, especially in higher institutions tried to find substitutes to overcome suspension due to COVID-19 pandemic problem. Although some of them success to use e-learning and complete academic year, but unfortunately the majority failed. This is so, because they were not ready for such situation.

The objective of this work is to discuss e-learning as an effective supportive university learning tool and that it can be successfully used to continue learning during any un expected reasons that hampers educational process. Pave a road for smooth turning to e-learning process in university institutes.

The work concluded with that e-learning provides a powerful mean that it can be applied gradually to university education to face challenges now facing universities. Instructors and learners are ready to deal and cope with e-learning. Multiplicity of e-learning characteristics make it more convenient, flexible and satisfies all stake holders. E-learning proved effectiveness in different fields and successfully supporting student and it had a positive impact.

KEYWORDS: Active learning, Asynchronous learning, Blended e-learning, Digital student, E-learning, E-teacher, Full e-learning, Learning management system, Supportive e-learning and Synchronous learning

I. INTRODUCTION

Learning is the process of acquiring new understanding, knowledge, behaviors, skills, values, attitudes, and preferences [8]. Learning is not something done to students, but rather something students themselves do. It is the direct result of how students interpret and respond to their experiences.

Regardless of the field of study, students need to have significant opportunities to develop and practice intellectual skills/thinking processes, motor skills and attitudes/values that are important to their fields of study. In addition, students need opportunities to develop interpersonal and social skills that are important for professional and personal success such as teamwork, effective communication, conflict resolution and creative thinking [15].

On the other hand, creating excitement in the classroom that active learning is known as Active learning. When using active learning students are engaged in more activities than just listening. They are involved in dialog, debate, writing and problem solving, as well as higher-order thinking.

Active learning proved number of benefits such as address different learning needs, reinforces important skills, such as critical thinking and decision making, boosts learner

motivation and performance, creates a strong sense of community through peer-to-peer interaction.

In learning process, it is necessary to declare the learning objectives that describe what students should know at the end of the course that they couldn't do before. Learning objectives should be brief, clear, specific statements of what learners will be able to do at the end of a lesson as a result of the activities, teaching and learning that has taken place.

Learning outcomes are statements that describe the knowledge or skills students should acquire by the end of a particular assignment, class, course, or program, and help students understand why that knowledge and those skills will be useful to them [13]. They focus on the context and potential applications of knowledge and skills, help students connect learning in various contexts, and help guide assessment and evaluation.

Good learning outcomes emphasize the application and integration of knowledge. Instead of focusing on coverage of material, learning outcomes articulate how students will be able to employ the material, both in the context of the class and more broadly.

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II. E-LEARNING

E-learning is a new method of learning utilizing electronic technologies to access educational curriculum online, via the internet outside of a traditional classroom. E-learning has taken the world of learning by storm, flaunting its features such as flexibility, cost-effectiveness, accessibility, and more. Organization adapting to e-learning is just one step of the process [2].

E-learning can be Synchronous learning; refers to a learning event in which a group of students are engaging in learning at the same time or, Asynchronous learning; in which a student-centered teaching method that uses online learning resources to facilitate information sharing outside the constraints of time and place among a network of people.

On the other hand, e-learning levels are classified according to students' attendance to class room to; Supportive, Blended and Full.

Supportive e-learning level uses e-learning at the university by taking all classes face-to-face in classrooms, and the e-learning systems, tools and environment are used to support and facilitate the learning process.

Blended e-learning level uses e-learning in the university by replacing some face-to face sessions in classrooms by e-activities on the course site using the e-learning systems, tools and environment i.e. virtual classes.

On the other bank of e-learning levels stands the Full e-learning. Full e-learning is the level that replacing all the face-to-face sessions in classrooms by e-activities on the course site using the virtual classes with the exception of the final exam and the limited face-to-face sessions decided by the faculty and the teacher [7].

From interactivity point of view, learners can interact with e-learning in one of four main levels; Passive, Limited, Moderate or Full.

In Passive e-learning interactivity level, there is no interaction or interaction may be very little. The learner is a receiver of the information and has no control on the learning. Direct, clear, content-based e-learning condition. Students are furnished with various content-based assets, for example, broad research and prevalent web journals. This level may incorporate connects to recordings, podcasts, basic pictures and illustrations, and furthermore, test questions.

In Limited e-learning interactivity level there will be limited participation. Learners may have some control over their e-learning experience, as they are required to make simple interactions with the e-learning material.

In Moderate e-learning interactivity level there will be moderate interaction. Learners gain more control over the e-learning experience, which is more customized and complex. The learner is actively involved in the learning and practicing what is learned complex graphics, animations, illustrations, audio, videos, branching scenarios, and simulated environments suitable for courses to aid utilization of cognitive skills into work or real life situations.

Full e-learning interactivity level stands for e-learning in which learners have great control over their e- learning experience, as they are required to fully interact with the e-learning content and give feedback.

Highest level of interactivity, learning occurs real-time. The learner is free to learn and practice new skills, and has full control over the learning. Very complex content, high-end animations, high impact graphics, digital avatars to teach complex subjects, customized audio-visuals Ideal for trainings where learners are expected to deal with real life situations and apply their knowledge on the job [7].

New terms also appeared with e-learning. For example, teachers who work in an internet environment in both regular and virtual classroom situations termed E-teachers. E-teachers collaborate, build and discover new learning communities and explore resources as they interact with information, materials and ideas with their students and colleagues. Conversely, students deal with digital environment termed Digital students. Their brains have become accustomed to digital media. Many of them have today evolved from sitting in front of screens to using handheld devices to send e mails, text messages and send instant messages. In fact, this generation is called the digital generation [5].

In fact, e-learning process provided number of characteristics [6]. These characteristics can be arranged as follows:

- Necessity to keep abreast of fast changing development in almost every field.
- Supplement and enhance the teaching learning process of conventional education.
- Effective methodology to cope with increasing student strength and limited teaching and infra structure resources.
- Supplementing the teaching process. Enable students the flexible of time, place and to certain extent place of learning.
- Provides wider opportunities for learning, access to wider range type of learning material, support different styles of learning.
- Allow more flexible course management.
- Provides an almost one-to-one communication between the teacher and the learner.
- Make available teachers from different parts of the globe to share their expertise with the learners.
- Achieve better learning outcomes, more effective assessments, more cost-efficient way of bringing the learning environments to the learner.
- Support the continuing education process for meeting the needs of employers and workplace learners.
- Help employees in organizations to keep abreast of latest trends.

Similar to conventional learning, e-learning has number of strategies and approaching that can be used. The following are some of which.

E-learning can be Collaborative. Collaborative learning is an e-learning strategy where students are able to socially interact with other students, as well as instructors. In essence, learners work together in order to expand their knowledge of a particular subject or skill. In e-learning environments, this is typically done through live chats,

message boards, or instant messaging. All students can interact together, in groups or in pairs.

Micro-learning involves learning in smaller steps, and goes hand-in-hand with traditional e-learning. Activities that are micro-learning based usually feature short term lessons, projects, or coursework that is designed to provide the student with 'bits' of information.

E-learning can also be Rapid. Rapid e-learning can pertain to a number of things; it is generally used to describe the pace at which an e-learning course is developed.

Personalized Learning is the tailoring of pedagogy, curriculum and learning environments to meet the needs and learning styles of individual learners [6].

Instructor can select a suitable strategy to use according to the nature of the course or the lesson, student's characteristics and course duration.

III. LEARNING MANAGEMENT SYSTEM

Learning Management System (LMS) allow instructor to manage every aspect of a course, from the registration of students to the storing of test results, as well as accepting assignments digitally and keep in touch with students. In essence, the LMS is the backbone of most e-learning activities.

There are many LMSs, both commercial and open source. LMSs do vary in the features they offer, but most systems are likely to have some or all of the following features:

1. Easy Graphical User Interface (GUI).
2. Customization: Language options, notification settings and other important features can be changed to suit the way wanted.
3. Enrollment: The system may allow students to enroll online and keep track of their details, course progress and test results.
4. Virtual classroom: Integrate with whiteboard systems for virtual classroom sessions.
5. Social networking: Able to integrate with social media.
6. Communication: Built in functionality for communicating with students, such as sending emails.
7. Course tracks: Flexible work flow to set students on certain learning tracks.
8. Reports: Generating reports and graphical representation of data.
9. Help with content creation: Being user-friendly and offering templates for new users.
10. Testing: Tests are an important part of many online courses. Test results will be stored and available within the reporting area.

IV. COMPONENTS OF AN ONLINE COURSE

An online course should include a detailed syllabus and course contents. It also should give opportunities for student to interact and feedback. Tests, and assessments are also important. Moreover, it should be easy accessible. Creating a consistent structure can improve course navigation, clarity and consistency for students and will help expedite new course design and development in the future.

Some MLSs design sample of templates that can assist instructor to build the e-course. The selection of a suitable template may depend on the nature of the course, and the

policy of the institute. In general, the following components often provide a foundation for new online instructors when first building their online courses and programs.

1. Course announcements should be clear, supportive and regularly posted.
2. Course information should display fundamental details about the course, including the syllabus, schedule, grading policy, or other relevant logistical items that students access repeatedly.
3. Instructor information should include phone, email, office location, office hours, online chat hours (if applicable), and social media such as Skype, Twitter, etc. details as appropriate. It may also be useful to also include communication policy as part of instructor information in the course.
4. Course modules (individual containers of instructional content, including readings, activities, directions and other resources [15]) are the fundamental organizational vehicles for delivering content within an online course. A complete module typically contains four basic elements; introduction, objectives, resources (readings, video lectures, communication tasks, sample files, etc.) and a "to-do" list which directs students over a set amount of time.
5. Discussion or online interaction, especially synchronous and asynchronous discussion, among students and instructors has been identified as a keystone to online course effectiveness.
6. Submissions is a general area where students may submit their assignments or projects for grading.
7. Assessments or assignments is a general area where any graded quizzes, exams and activities are posted.
8. Grades or the gradebook is an area that shows all of the assignments that a student has submitted and their corresponding grades and feedback details.
9. Messaging/email is an area where students can easily locate and send email or messages to the instructor or any other member of the class.
10. Course support or help is an area where you have links to external support mechanisms [10].

V. CRUCIAL COMPONENTS OF ONLINE COURSE

For some, e-learning is a new mode of teaching and there is always new technology to consider. In order to simplify the process, below are four crucial components to consider when creating a course.

- A. Course structure: An online course must have an intuitive and clear structure so student can easily understand how to navigate in the LMS and do course expectation.
- B. Course content delivery: With numerous methods of delivery available in an online setting, it is important to carefully select appropriate tools for each lesson. Instructor should learn how and when to effectively use different tools and apply them as necessary.
- C. Break down barriers: Instructor shouldn't let physical distance interfere with student interaction and be always in contact. Assign students to collaborate and complete a creative assessment.
- D. Ensure functionality: When designing an online course, keep in mind different technical and aesthetic aspects that come into play. It is necessary to be sure that all links are active and that material is easily accessible to students.

When possible, games can be added to e-learning environment to provide enjoyment, challenge, and opportunity. Gamification, when done well, entices, motivates, challenges, and empowers learners so they willingly achieve higher objectives. Games can be more than entertainment, and can lead to deeper engagement, and that brings better retention and changes in student behavior. Moreover, games can be designed to be relevant to course contents. Learners explore concepts, make strategic decisions, receive immediate feedback, and willingly re-engage after unsuccessful attempts.

VI. ADVANTAGES AND DISADVANTAGES OF E-LEARNING

E-learning has many advantages over conventional learning process. Through e-learning various resources in several varying formats can be linked. It is a very efficient way of delivering courses online and due to its convenience and flexibility, the resources are available from anywhere and at any time so everyone, can take advantage of web-based learning. Moreover, web-based learning promotes active and independent learning. Therefore, it is a very convenient and flexible option.

Through discussion boards and chats, it is possible to interact with everyone online and also clear doubts if any. The video instructions that are provided for audio and video learning can be rewound and seen and heard again and again if you do not happen to understand the topic first time around [6].

Although e-learning proved its efficacy and advantages over traditional classroom learning, it also has some disadvantages. One, is that it concentrates on getting knowledge on a theoretical basis. Also, online student feedback is limited and it can cause social isolation. E-learning requires strong self-motivation and time management skills. Lack of communicational skill development in online students and deceit prevention during online assessments is complicated. E-learning lacks face-to-face communication in addition to that online learning is inaccessible to the computer illiterate population, the thing that may not be applicable to university students today.

If not all, it could be said that most of these disadvantages can be overcome by applying a suitable educational solution.

VII. E-LEARNING ACCREDITATION

Accreditation is a certificate from a third party that the point of what provided conformity assessment services in a specific area, formally qualified to carry out specific conformity assessment after they meet all the requirements contained evidence international to ensure the continuity of their efficiency.

One of a well-known e-learning accreditation boards is Quality Matters (QM). QM is a nonprofit organization comprised of a dedicated staff that works together virtually to support everyone's quality assurance goals.

QM rubrics and standards are set of eight general standards and 42 specific review standards used to evaluate the design of online and blended courses. Annotations explain the applications of the standards and their inter-relationships.

The rubric has a scoring system used by the QM to determine whether a course meets standards. Essential standards (3-point specific review standards) must be met during the review and an overall score of 85% of the points possible are required for a course to attain QM certification [15].

A scoring guides used to evaluate the quality, were created to help course developers, teachers, faculty, entire organizations, and students. The sixth edition QM standards stated eight general standards as follows:

1. Course overview and introduction: The overall design of the course is made clear to the learner at the beginning of the course.
2. Learning objectives (Competencies): Learning objectives or competencies describe what learners will be able to do upon completion of the course.
3. Assessment and measurement: Assessments are integral to the learning process and are designed to evaluate learner progress in achieving the stated learning objectives or mastering the competencies.
4. Instructional materials: Instructional materials enable learners to achieve stated learning objectives or competencies.
5. Course activities and learner interaction: Course activities facilitate and support learner interaction and engagement.
6. Course technology: Course technologies support learners' achievement of course objectives or competencies.
7. Learner support: The course facilitates learner access to institutional support services essential to learner success.
8. Accessibility and usability: The course design reflects a commitment to accessibility and usability for all learners.

Detailed QM Standards are represented in the appendix of this work.

VIII. TURNING TO E-LEARNING

It is necessary to make a decision to start turning towards e-learning to support traditional learning process i.e. in supportive level, then, blended or full level would be ready to implement when necessary.

- According to university policy and budget, a decision could be made to select a suitable management learning system.
- Active system managers are important for operation and maintenance of the e-learning infrastructure.
- Appointing some instructional administrators who responsible for the continuous monitoring of the instruction process, the enrolment of students, the compilation of course programs, and the identification of new course needs.
- Involving instructors who are responsible for the handling of problems, questions pertaining to students, the compilation and updating of the content of educational materials.
- Sometimes it may be necessary to implement text developers to assist in conversion of traditional texts into electronic educational materials and the respective maintenance tasks.
- One step to effective e-learning, is to activate university emails. University can create official emails specially for departments, lecturers and students. Notice,

advertisements and other academic communication should be achieved through these e-mails. Academic contacts and documentation through these emails should be officially considered.

The concept of e-contacts will make a student to cope with electronic academic community. Conversely, all e-learning management systems have the property to contact students and make advertisement through. So this is one of powerful e-learning tools. Besides that, it represents one of e-learning quality requirements.

- Each course instructor or text developers should prepare online course materials including; course learning objectives and structure, course topics (modules) and topic objectives, course materials and references. In addition to these, the plan for interacting with learners during the course is also necessary.

The course grading policy, assessments, course and institutional policies, and communication expectations for online discussions should be prepared.

- Number of approaches can be used to upload courses to LMS beside instructional administrators. But, it is better to assign or develop a course template that satisfies typical course requirements. Then, short training can be oriented to course instructors to assist them to upload their own courses.
- Institution can be totally turn to e-learning but, gradual implantation may be a better choice. Selected subjects or academic levels to which e-learning intended to implement.

Newer students or preliminary level can also be better choice. Here, cumulative student experience can be gained and positively enriches future e-learning process.

Finalist can also be good alternative choice but, no cumulative experience can be gained in this case.

All these options can be planned to run in parallel and total e-learning implementation process assigned to complete after a specific period of time.

- It is necessary to evaluate e-learning and decide whether certain program courses are working for a particular set of learners or not. Measuring the effectiveness of e-learning will help institutes to realize whether their e-learning courses are being effective enough.

In general, e-learning has proved to be effective. The institutes which use e-learning technologies are a step ahead of those which still have the traditional approach towards learning.

Number of researches were carried out and recommended to implement e-learning in university educational process.

E-learning can successfully support student and it had a positive impact. It helps them access to course modules and improve their academic capacities. It also increases students' academic contributions. Through e-learning, students easily follow course attentions and the course become popular. Moreover, it is easy to do tests and tasks and obtain grades. Therefore, e-learning assists to achieve course learning objectives [2].

Researchers recommended implementing various forms of virtual classes in teaching many subjects and to held more training courses in field of e-learning. The LMS classroom had a good acceptance and a greater impact [1]. A potential exists for increasing the number of non-STEM (non-Science, Technology, Engineering and Mathematics) majors engaged in citizen science using the flexibility of online learning to teach environmental science core concepts [4].

IX. CONCLUSION

From e-learning literature reviewed analysis and discussion carried out, it can be concluded with the following points:

- COVID-19 global crisis illuminated the necessity of implementing e-learning in university education.
- Both, e-teachers and digital students are ready to deal and cope with e-learning.
- It is important to apply e-learning in supportive level, then blended and full levels can be applied when necessary.
- Variety of e-learning strategies and approaches make it more convenient.
- Transition to e-learning can be gradually adopted.
- E-learning characteristics, make it flexible and satisfies all stake holders.
- Considering crucial components of e-learning, make it more effective.
- Adding e-learning gamification make learning to be more interesting process.
- E-learning standards yields effective learning and leads to accreditation.
- Researches proved effectiveness of e-learning in different fields and that it can successfully supporting students and it had a positive impact.

Finally, it is time to implement technology in learning by shifting to e-learning, get its benefit and achieve appointed learning objectives.

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- 2.4. The relationship between learning objectives or competencies and learning activities is clearly stated. (3 points)
 - 2.5. The learning objectives or competencies are suited to the level of the course. (3 points)
3. Assessment and Measurement
 - 3.1. The assessments measure the achievement of the stated learning objectives or competencies. (3 points)
 - 3.2. The course grading policy is stated clearly at the beginning of the course. (3 points)
 - 3.3. Specific and descriptive criteria are provided for the evaluation of learners' work, and their connection to the course grading policy is clearly explained. (3 points)
 - 3.4. The assessments used are sequenced, varied, and suited to the level of the course. (2 points)
 - 3.5. The course provides learners with multiple opportunities to track their learning progress with timely feedback. (2 points)

Appendix

Specific Review Standards from the QM Higher Education Rubric, Sixth Edition

1. Course Overview and Introduction
- 1.1. Instructions make clear how to get started and where to find various course components. (3 points)
- 1.2. Learners are introduced to the purpose and structure of the course. (3 points)
- 1.3. Communication expectations for online discussions, email, and other forms of interaction are clearly stated. (2 points)
- 1.4. Course and institutional policies with which the learner is expected to comply are clearly stated within the course, or a link to current policies is provided. (2 points)
- 1.5. Minimum technology requirements for the course are clearly stated, and information on how to obtain the technologies is provided. (2 points)
- 1.6. Computer skills and digital information literacy skills expected of the learner are clearly stated. (1 point)
- 1.7. Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated. (1 point)
- 1.8. The self-introduction by the instructor is professional and is available online. (1 point)
- 1.9. Learners are asked to introduce themselves to the class. (1 point)
2. Learning Objectives (Competencies)
- 2.1. The course learning objectives, or course/program competencies, describe outcomes that are measurable. (3 points)
- 2.2. The module/unit-level learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies. (3 points)
- 2.3. Learning objectives or competencies are stated clearly, are written from the learner's perspective, and are prominently located in the course. (3 points)
4. Instructional Materials
- 4.1. The instructional materials contribute to the achievement of the stated learning objectives or competencies. (3 points)
- 4.2. The relationship between the use of instructional materials in the course and completing learning activities is clearly explained. (3 points)
- 4.3. The course models the academic integrity expected of learners by providing both source references and permissions for use of instructional materials. (2 points)
- 4.4. The instructional materials represent up-to-date theory and practice in the discipline. (2 points)
- 4.5. A variety of instructional materials is used in the course. (2 points)
5. Learning Activities and Learner Interaction
- 5.1. The learning activities promote the achievement of the stated learning objectives or competencies. (3 points)
- 5.2. Learning activities provide opportunities for interaction that support active learning. (3 points)
- 5.3. The instructor's plan for interacting with learners during the course is clearly stated. (3 points)
- 5.4. The requirements for learner interaction are clearly stated. (2 points)
6. Course Technology
- 6.1. The tools used in the course support the learning objectives or competencies. (3 points)
- 6.2. Course tools promote learner engagement and active learning. (3 points)
- 6.3. A variety of technology is used in the course. (1 point)
- 6.4. The course provides learners with information on protecting their data and privacy. (1 point)
7. Learner Support
- 7.1. The course instructions articulate or link to a clear description of the technical support offered and how to obtain it. (3 points)

- 7.2. Course instructions articulate or link to the institution's accessibility policies and services. (3 points)
- 7.3. Course instructions articulate or link to the institution's academic support services and resources that can help learners succeed in the course. (3 points)
- 7.4. Course instructions articulate or link to the institution's student services and resources that can help learners succeed. (1 point)
8. Accessibility and Usability
- 8.1. Course navigation facilitates ease of use. (3 points)
- 8.2. The course design facilitates readability. (3 points)
- 8.3. The course provides accessible text and images in files, documents, LMS pages, and web pages to meet the needs of diverse learners. (3 points)
- 8.4. The course provides alternative means of access to multimedia content in formats that meet the needs of diverse learners. (2 points)
- 8.5. Course multimedia facilitate ease of use. (2 points)
- 8.6. Vendor accessibility statements are provided for all technologies required in the course. (2 points)

